AN ANALYSIS OF MALIGNANCIES PRESENTING AS ACUTE ABDOMINAL EMERGENCIES IN GENERAL SURGERY

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CERTIFICATE

Certified that this dissertation is the bonafide work of **Dr. MAYURESH M. DESHPANDE** on **" AN ANALYSIS OF MALIGNANCIES PRESENTING AS ACUTE ABDOMINAL EMERGENCIES IN GENERAL SURGERY"** during his M.S. (General Surgery) course from May 2007 to March 2010 at the Government Kilpauk Medical College and Government Royapettah Hospital, Chennai.

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Last but not the least I express my gratitude towards **MY PATIENTS** not only for their consent and co-operation towards the preparation of this study but also for the privilege of practicing our craft.

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PROFORMA

NAME: AGE: SEX:

ADDRESS: UNIT: O.P/I.P No.:

Socioeconomic status:

D.O.A: D.O.D.:

PRESENTING COMPLAINTS:

SYMPTOMS: Pain abdomen/ distension/ malaise /loss of weight / fever/ mass abdomen/ constipation/diarrhea/ hematemesis/ bleeding per rectum/urinary retention.

SIGNS:

GENERAL

Built:	Pallor:	Icterus:
Pedal edema:	Fever:	Hydration:
Clubbing	PR:	BP:

ABDOMEN, GENITO URINARY TRACT AND PER RECTAL EXAM:

OTHER SYSTEMS:

INVESTIGATIONS

Blood:

Complete hemogram - Hb, TC, DC, ESR

Blood - Sugar, Urea

Serum electrolytes - Na, K, Cl, HCO3

Serum creatinine

Urine:Routine - alb, sugar, deposits.

Imaging:

X-ray chest P.A. & abdomen A.P.

USG abdomen

CT scan

Others

PREOPERATIVE PREPARATION

OPERATIVE PROCEDURE

Date: Surgeon: Anesthetist:

Anesthesia:

Procedure:

Findings:

Recovery

Post Operative complications / morbidity / mortality (within 30 days)

Relief of symptoms:

Histopathological Examination of specimen:

FOLLOW UP:

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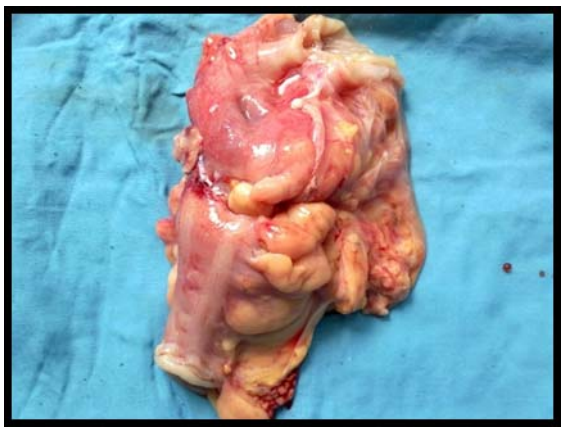
Abbreviations used in Master Chart:

NO.	- Number
I.P.	- In Patient
D.O.A.	- Date Of Admission
CMF	- Co Morbid Factors
H.P.E.	- Histo Pathological Examination
D.O.D.	- Date of Discharge
D.O.E.	- Date of Expiry (Death)
DM	- Diabetes Mellitus
CAD	- Coronary Artery Disease
HT	- Hyper Tension
P.T.	- Pulmonary Tuberculosis
CRF	- Chronic renal Failure
B/L HUN	- BiLateral hydro uretero nephrosis

PLATE I: COLONIC MALIGNANCY PRESENTING AS ACUTE

INTESTINAL OBSTRUCTION

RADIOGRAPH



RESECTED SIGMOID COLON

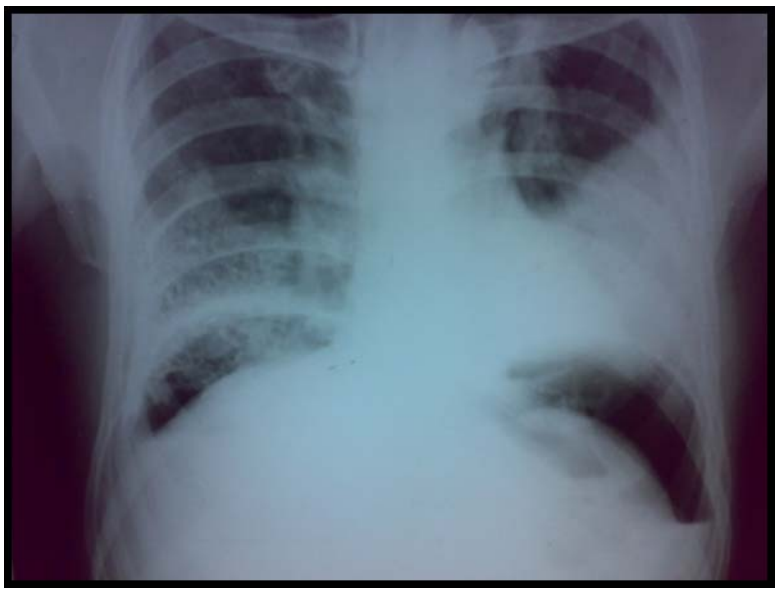
CUT SECTION

PLATE II: COLONIC OBSTRUCTION DUE TO OVARIAN TUMOR

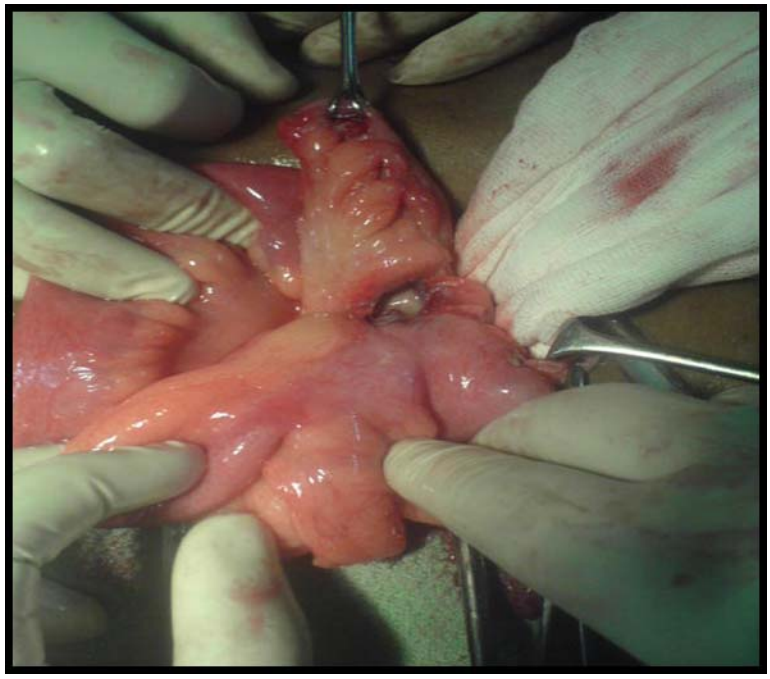
RADIOGRAPH: MULTIPLE AIR FLUID LEVELS WITH SOFT TISSUE SHADOW IN PELVIS

RESECTED SPECIMEN

PLATE III: GASTRIC MALIGNANCY PERFORATION



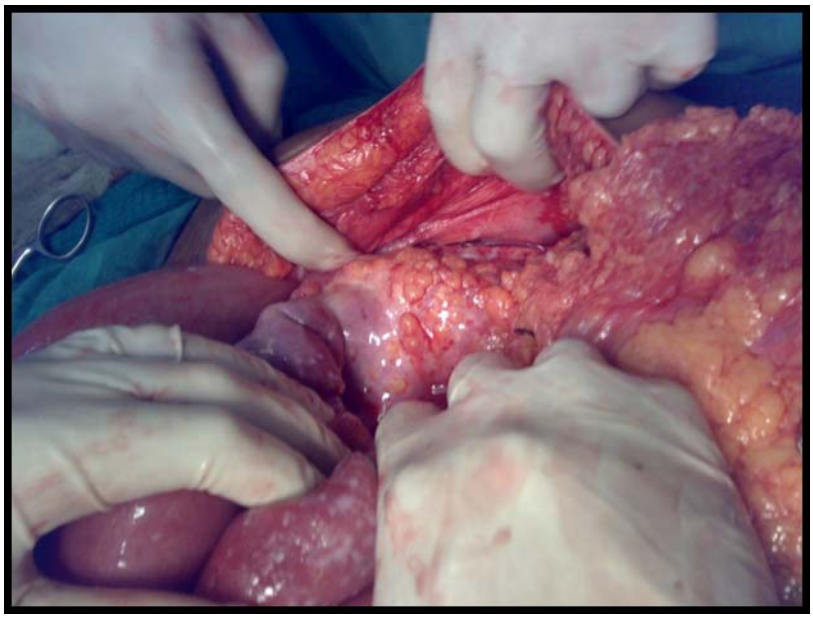
RADIOGRAPH SHOWING AIR UNDER DIAPHRAGM



INTRA OPERATIVE PICTURE SHOWING LARGE GASTRIC PERFORATION

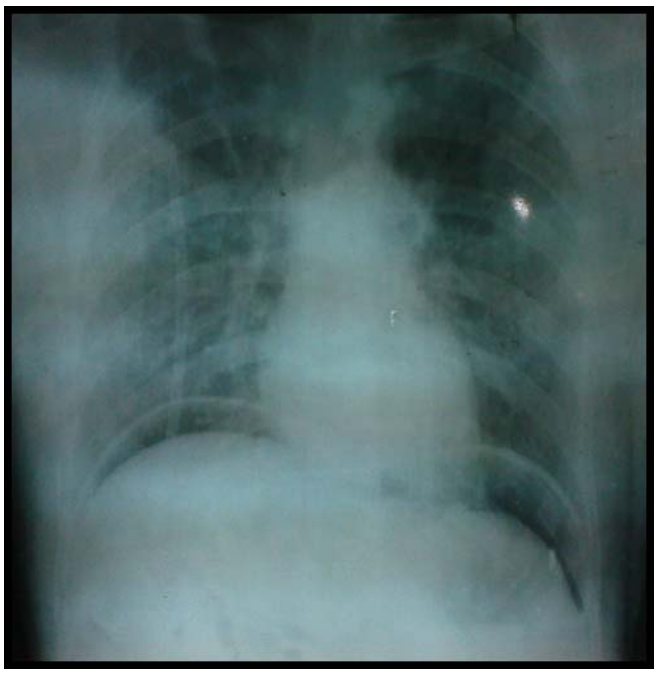
PLATE IV: CECAL MASS CAUSING ACUTE INTESTINAL OBSTRUCTION

RADIOGRAPH SHOWING ACUTE INTESTINAL OBSTRUCTION



INTRA OPERATIVE PHOTO SHOWING CECAL GROWTH WITH PERITONEAL METS

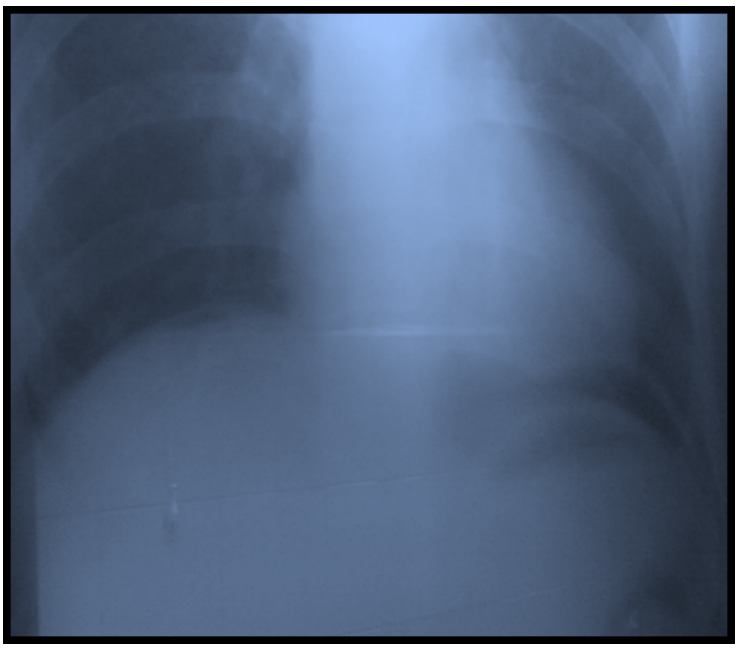
PLATE V: SPLENIC FLEXURE MALIGNANCY CAUSING CAECAL PERFORATION



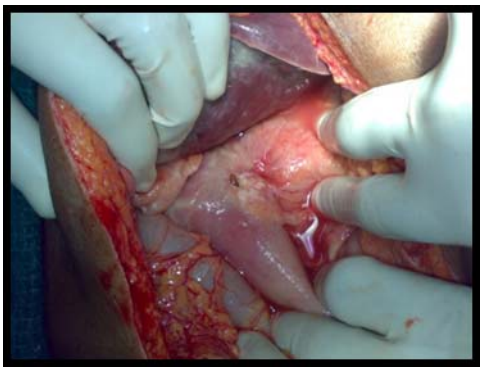
RADIOGRAPH SHOWING AIR UNDER BOTH DOMES OF DIPHRAGM

PHOTO 1:CECAL PERFORATION PHOTO 2: SPLENIC FLEXURE GROWTH

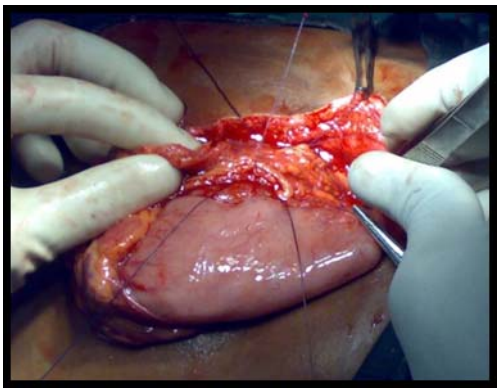
LATE VI: MALIGNANT GASTRIC PERFORATION



RADIOGRAPH SHOWING AIR UNDER LEFT DOME OF DIAPHRAGM



PIC 1: GASTRIC PERFORATION



PIC 2: OMENTAL PATCH CLOSURE

INTRODUCTION

It is said that the abdomen is a Pandora's Box, a Black Box, a Box of Surprises and so on….the list is endless. The general surgeon has to have in his armamentarium not only a good command of anatomy, but also of surgical physiology and pathology in even the most normal of cases. Even when no surprise is anticipated, one field where the surgeon has to be most careful and cautious is while performing emergency operations. In often not so rare circumstances the surgeon is stumped by a small tumor sitting at the place of obstruction or the site of perforation where he was planning to operate. This is one of the most challenging circumstances where the management completely changes and not only the surgeon has to manage the emergency he has to plan for future management of the malignancy also. Moreover generally malignancy is a disease of old age. Patients tend to have multiple co morbid conditions which have to be kept in mind. The surgeon has to balance various factors and take an appropriate decision in a short time.

Over the years management of cancer both elective as well as emergency has undergone vast changes. Previously radical surgeries now have become conservative due to supplementation by chemotherapy and radiotherapy. Inoperable tumors have become operable, radical surgeries have become possible even in emergencies, all due to the advancements in

medicine and technology. Many studies have been conducted worldwide on various presentations of malignancies and their various modalities of management.

This particular study deals with malignancies encountered by us, as an emergency, in the department of General Surgery, Government Royapettah Hospital, Kilpauk Medical College during the period between May 2007 and October 2009. The unusual aspect of this study is the emphasis on emergency surgery, the problems that were encountered by the general surgeon when we saw a malignancy as the cause and how we managed them.

Another factor which is unique is that this study deals with adult patients that we have encountered in Royapettah Hospital. A good and competent general surgeon must be able to deal with and manage such cases with little mental preparation. This study shows us the various malignancies that we have encountered in the study period, their pattern of distribution, modes of presentation, and methods of management.

AIMS OF THE PRESENT STUDY

This study is a prospective analysis of malignancies encountered in emergency surgery from the period of May 2007 to October 2009 in a single institution.

The study aims to identify the following:

- To know the incidence of malignancies in adult emergency surgery.
- To identify the most common malignancies in adult emergency surgery.
- To assess whether there is a difference between distribution of such malignancies between male and female patients.
- To assess the most common modes of manifestation in such malignancies.
- To know the prognosis of these patients in terms of perioperative mortality.
- To know whether the presence of co-morbid factors affects survival rate.

MATERIALS AND METHODS

Study group: Patients who were admitted in all the four surgical units of Govt. Royapettah Hospital between May 2007 to October 2009, with abdominal emergencies ranging from acute appendicitis to parietal wall abscesses, intestinal obstruction and peritonitis – either localized or diffuse

Study design: Prospective Observational study.

Materials: Detailed history, physical examination and investigations for emergency surgery including X Ray Chest and abdomen, Ultrasound abdomen and CT abdomen.

History: Age, Sex, Duration of presenting complaints, Co-morbid illness

Physical examination: General examination – Look for dehydration, tachypnea, tachycardia, signs of volume compromise, fever.

Local examination – guarding/rigidity, tenderness, distension, absent bowel sounds.

PR – empty rectum, any mass, bleeding per rectum

Histopathological examination was conducted in relevant patients. They were followed in the post operative period and subsequent to their discharge.

Inclusion criteria:

- Adult patients (above the age of 12 years)
- Abdominal emergency surgery (surgery for laparotomies, intestinal obstruction, peritonitis, hemorrhage)
- Histopathological report suggestive of malignancy.

Exclusion criteria:

- Pediatric cases (below the age of 12 years)
- Elective surgeries and patients who were previously worked up suspecting such malignancies.

Limitations

- Being a study of malignancies in emergency surgery, this study gives a general idea of the incidence of only those cases who present with complications, either resulting due to these malignancies or due to some other cause. Most patients with malignancies do not present with such problems, they are diagnosed rather with their classical features of presentation pertaining to the organ involved.
- This study involves only the cases that primarily present with surgical complications, whereas there is another set of patients who are diagnosed with malignancies and are on treatment and develop complications due to the treatment or in the later course of the disease

due to malnutrition or paraneoplastic syndromes or metastasis which are not included.

- Moreover a greater subset of patients with medically treatable complications is not dealt with as these are mainly treated by the physician and the medical oncologist in our institution.
- ue to a limited number of cases, statistical analysis could not be done.
- As the study period is short, complete follow up of all the patients could not be done.

All patient details were meticulously recorded and details verified with the case sheets. All variables pertaining to patient details, presentation, pre-op investigations were recorded in preformed worksheet to ensure uniformity in recording and eliminating any bias.

Data collection

The data of each patient was collected on a proforma specially designed for this study and included demographic details, clinical features, past medical history, interval between onset of symptoms and admission, operative findings, procedure performed, post operative complications and duration of stay in the hospital.

REVIEW OF LITERATURE

SURGICAL EMERGENCIES

The term acute abdominal pain generally refers to previously undiagnosed pain that arises suddenly and is of less than 7 days (usually less than 48 hours) duration.[1] It may be caused by a great variety of intraperitoneal disorders, many of which call for surgical treatment, as well as by a range of extraperitoneal disorders, [2] which typically do not call for surgical treatment. Abdominal pain that persists for 6 hours or longer is usually caused by disorders of surgical significance.[3]

The primary goals in the management of patients with acute abdominal pain are:

(1) To establish a differential diagnosis and a plan for confirming the diagnosis through appropriate imaging studies,

(2) To determine whether operative intervention is necessary, and

(3) To prepare the patient for operation in a manner that minimize perioperative morbidity and mortality.

As shown below (table1-3), malignancies represent only a very small proportion of cases encountered by a general surgeon as acute abdomen.

Although very small in proportion, their diagnosis markedly changes the further course of management and has a significant effect on the prognosis.

Table 1 Intraperitoneal Causes of Acute Abdominal Pain[4]

Inflammatory
Peritoneal

Chemical and nonbacterial peritonitis

Perforated peptic ulcer/biliary tree, pancreatitis, ruptured ovarian cyst,

Bacterial peritonitis

Primary peritonitis

Pneumococcal, streptococcal, tuberculous

Spontaneous bacterial peritonitis

Perforated hollow viscus- Esophagus, stomach, duodenum, small intestine, bile duct, gallbladder, colon, urinary bladder

Perforated carcinoma stomach or colonic perforation due to malignant obstruction

Hollow visceral

Appendicitis

Cholecystitis

Peptic ulcer

Gastritis

Duodenitis

Inflammatory bowel disease

Meckel diverticulitis

Colitis (bacterial, amebic)

Diverticulitis

Solid visceral

Pancreatitis

Hepatitis

Pancreatic abscess

Hepatic abscess

Splenic abscess

Mesenteric

Lymphadenitis (bacterial, viral)

Epiploic appendagitis

Pelvic

Pelvic inflammatory disease (salpingitis)

Tubo-ovarian abscess

Endometritis

Mechanical (obstruction, acute distention)
Hollow visceral

Intestinal obstruction-

Adhesions, hernias, ***neoplasm*s**, volvulus
Intussusception, gallstone ileus, foreign bodies
Bezoars, parasites

Biliary obstruction-

Calculi, ***neoplasms***, choledochal cyst, hemobilia

Solid visceral

Acute splenomegaly

Acute heptomegaly (congestive heart failure, Budd-Chiari syndrome)

Hemorrhage or degeneration into a hepatoma or a malignant tumor

Mesenteric

Omental torsion

Pelvic

Ovarian cyst
Torsion or degeneration of fibroid, ***ovarian tumor***
Ectopic pregnancy

Hemoperitoneum

Ruptured ectopic pregnancy

Spontaneous splenic rupture

Ruptured uterus

Ruptured graafian follicle

Ruptured hepatic neoplasm

Ruptured aortic or visceral aneurysm

Ischemic

Mesenteric thrombosis

Hepatic infarction (toxemia, purpura)

Splenic infarction

Omental ischemia

Strangulated hernia

Neoplastic

Primary or metastatic intraperitoneal neoplasms

Traumatic

Blunt trauma
Penetrating trauma
Iatrogenic trauma

Table 2 Common Causes of Acute Abdominal Pain

Non-specific abdominal pain (NSAP) 33%

Acute appendicitis 24%

Intestinal obstruction 11%

Acute cholecystitis 9%

Acute gynaecological disorders 4%

Acute pancreatitis 3%

Renal colic 3%

Perforated peptic ulcer 2%

Abdominal trauma 2% (variable)

Abdominal malignancy 2%

Diverticular disease 2%

Miscellaneous (e.g. acute medical conditions like inferior myocardial infarction, lobar pneumonia, diabetic ketoacidosis and acute porphyria) 5%

Table 3 Frequency of Specific Diagnoses in Patients with Acute Abdominal Pain

Diagnosis	Frequency in Individual Studies (% of Patients)					
	OMGE[5] (N = 10,320)	**Wilson[6] (N = 1,196)**	**Irvin[7] (N = 1,190)**	**Brewer[8] (N = 1,000)**	**de Dombal[1] (N = 552)**	**Hawthorn[9] (N = 496)**
Nonspecific abdominal pain	34.0	45.6	34.9	41.3	50.5	36.0
Acute appendicitis	28.1	15.6	16.8	4.3	26.3	14.9
Acute cholecystitis	9.7	5.8	5.1	2.5	7.6	5.9
Small bowel obstruction	4.1	2.6	14.8	2.5	3.6	8.6
Acute gynecologic disease	4.0	4.0	1.1	8.5	-	-
Acute pancreatitis	2.9	1.3	2.4	-	2.9	2.1
Urologic disorders	2.9	4.7	5.9	11.4	-	12.8
Perforated peptic ulcer	2.5	2.3	2.5	2.0	3.1	-
Cancer	**1.5**	-	**3.0**	-	-	-
Diverticular disease	1.5	1.1	3.9	-	2.0	3.0
Dyspepsia	1.4	7.6	1.4	1.4	-	-
Gastroenteritis	-	-	0.3	6.9	-	5.1
Inflammatory bowel disease	-	-	0.8	-	-	2.1
Mesenteric adenitis	-	3.6	-	-	-	1.5
Gastritis	-	2.1	-	1.4	-	-
Constipation	-	2.4	-	2.3	-	-
Amebic hepatic abscess	1.2	-	1.9	-	-	-

ONCOLOGIC EMERGENCIES[10]

True oncologic emergencies are rare, and often do not require surgery, such as superior vena cava (SVC) syndrome, spinal cord compression, and paraneoplastic syndromes. However, surgeons are often asked to consult on how to manage patients with malignancies who have complications from tumor progression, or from cytotoxic therapies. Oncologic emergencies may be broadly classified into the more common extra-abdominal problems among surgical patients with cancer, and the acute abdominal conditions for which surgical consultation is obtained.

EXTRA ABDOMINAL EMERGENCIES:

1. Superior Vena Cava Syndrome
2. Spinal Cord Compression
3. Pericardial Tamponade
4. Paraneoplastic Crisis
5. Hypercalcemia
6. Hyponatremia/ Syndrome of Inappropriate Antidiuretic Hormone
7. Hypoglycemia
8. Tumor Lysis Syndrome
9. Central Venous Catheter Sepsis

ABDOMINAL EMERGENCIES:

1. Intestinal Obstruction
2. Hollow Viscus Perforation
3. Biliary Obstruction
4. Neutropenic Enterocolitis
5. Hemorrhage

The extra abdominal emergencies though are more common than the intra abdominal emergencies, majority of them are effectively treated with medical management alone. At times they may require radiation therapy or chemotherapy or a combination of both, but they rarely come under the purview of the general surgeon. In the emergency room, the general surgeon is called upon to manage an abdominal emergency. These emergencies may be either due to benign causes in the presence of malignancy, may be due to malignancies per se or may be due to effects of the previous treatment as mentioned below.

ABDOMINAL EMERGENCIES

Intestinal obstruction

Bowel obstruction continues to be a considerable source of morbidity and mortality in patients with cancer. The decision regarding timing and the extent of surgery remain difficult, and few studies offer much guidance. Approximately two thirds of patients with ovarian cancer present with at least one episode of bowel obstruction, and nearly all patients with carcinomatosis suffer some sort of intestinal complication. In up to one third of all patients with a history of cancer who present with a bowel obstruction, the cause of the obstruction is a benign source (e.g., adhesions, hernias & radiation enteritis). In the other two thirds of these patients, either primary or metastatic disease is the source of their intestinal obstruction. The intra-abdominal malignancies most often associated with obstruction of the gastrointestinal tract are **carcinomas of the ovary, colon and stomach**. Extra abdominal malignancies may metastasize to the peritoneal cavity and cause obstruction; in such cases the most common sources are carcinomas of the lung, breast and melanoma.

Functional obstruction of the bowel without a mechanical cause (colonic pseudo obstruction" or Ogilvie's Syndrome) is a common problem in patients with cancer. Narcotic analgesics, electrolyte abnormalities,

radiation therapy, malnutrition, and prolonged bed rest may all contribute to delayed intestinal motility. The treatment consists of correcting the underlying cause and decompressing the bowel with a nasogastric tube. Colonoscopic decompression should be considered when the size of the cecum reaches 10 cm. Surgery is indicated if the degree of intestinal dilatation progresses to the point of impending perforation or if the patient shows any evidence of peritonitis. Tube cecostomy is the procedure of choice in these often-debilitated patients, with re-section and ileostomy formation reserved for cases of frank perforation. Another measure that has been recently described involves the administration of neostigmine (2.0-2.5 mg IV). This therapy has shown promise in a number of small series, but should only be considered for patients in a closely monitored setting.

The evaluation of intestinal obstruction in patients with cancer should be similar to that in patients with benign disease. After a complete history, Physical examination, and evaluation of laboratory and radiologic data, the degree and site of obstruction should be delineated. Immediate laparotomy is indicated for those patients who have signs or symptoms of intestinal ischemia necrosis, or frank perforation (abdominal tenderness, leukocytosis, fever, or tachycardia). Nearly 10% of patients will have con-current small and large-bowel obstruction. To exclude the possibility of colonic obstruction before laparotomy, a Gastografin enema may be obtained,

particularly in patients with multiple sites of intra-abdominal tumor. Either an upper gastrointestinal series with small-bowel follow-through or enteroclysis may be useful in patients with recurrent partial small-bowel obstructions. Finally, a CT scan of the abdomen and pelvis using oral and rectal contrast may help identify the location and etiology of the obstruction. Before laparotomy, all patients should undergo standard resuscitation including IV fluid administration correction of electrolyte abnormalities, and placement of a nasogastric tube.

In patients with a partial small-bowel obstruction, a trial of medical management is worthwhile. Up to 50% of patients respond to conservative treatment, which may require up to 2 weeks of intestinal decompression. Surgery is advocated for patients who do not respond to medical management or whose condition progresses to complete obstruction. Medical management is rarely successful in patients with a complete obstruction at any level, and these patients should undergo exploration. The goal of surgery is to provide relief of the obstruction, although this goal cannot always be accomplished. The surgeon should fully explore the abdomen and attempt to identify the cause of the obstruction. Benign adhesions should be lysed with care. In cases of radiation enteritis, gentle handling of the bowel is essential. Resection may be adequate for short segments of intestine but long segments are best treated by internal bypass.

A similar approach should be taken in relieving bowel obstruction caused by malignancy, although occasionally the extent of the malignant disease is too extensive to allow for any of these options. In such cases, placement of a venting gastrostomy for symptomatic relief is all that is indicated. A gastrostomy provides considerable relief from continued emesis and avoids the need for prolonged placement of a nasogastric tube.

Exploration related to a malignant bowel obstruction is associated with substantial morbidity and mortality. Almost 10% of patients die because of surgery, and another 30% suffer operative complications. Furthermore, patients have a mean survival of only about 6 months following laparotomy for a malignant bowel obstruction. Bowel obstruction from benign disease is rare in patients with known residual or recurrent intra-abdominal tumor. Therefore, bowel obstruction in patients with documented intra abdominal disease can be viewed as a premorbid event, with prolonged survival unlikely despite any intervention. Given such a poor prognosis, it is often more appropriate to pursue non-surgical options (e.g., placement of a percutaneous endoscopic gastrostomy tube).

Another recently employed management strategy for malignant obstruction of the rectum is the use of self-expanding metal stents. These stents may be used either as a definitive measure or as an adjunct to allow

for bowel decompression and cleansing in preparation for surgery. While colonic perforation is a potential complication, these devices may allow patients with near-complete obstruction to avoid a stoma and thus enjoy better quality of life.

Hollow Viscus Perforation

Perforation of the gastrointestinal tract in patients with cancer may occur at nearly any time in the course of the disease. In-deed, the condition may be the presenting sign of cancer, such as in cases of perforated primary colorectal carcinoma. The perforation may occur during treatment (either chemotherapy or radiation therapy), or it may be the result of metastatic tumor later in the course of the disease. Most perforations of the gastro-intestinal tract of cancer patients are from benign causes (e.g., peptic ulcer disease, diverticulitis, and appendicitis) and should be treated according to standard surgical principles. Surgery is associated with significant morbidity and mortality but is often the only therapeutic option available for this life-threatening complication. Patients must be well informed of the risks of surgery and must understand that an ostomy is a possibility before an emergency laparotomy. Non-surgical treatment, comfort care, or both may be appropriate, depending on the patient’s wishes, prognosis, and overall medical status.

Intestinal perforation is the presenting symptom of disease in a small group of patients with undiagnosed colorectal carcinoma. However, on further questioning, these patients usually state that they have had some symptoms, whether related to obstruction or to bleeding, attributable to the tumor. The perforation may by the result of full thickness colonic involvement with the tumor and subsequent necrosis of a region of the intestinal wall. A carcinoma that nearly or completely obstructs the lumen of the colon may also present with perforation proximal in the intestinal tract, usually the cecum. In general, patients who present with either perforated or obstructing colorectal cancer have a poorer overall prognosis, stage for stage, than do patients without these presentations. Furthermore, the operative mortality rate associated with emergency laparotomy for perforated colorectal cancer approaches 30%.

Perforation of the gastrointestinal tract following chemotherapy for metastatic solid tumors is a potentially fatal complication. The rate of operative mortality has been reported to be as high as 80% for an emergency laparotomy in patients with metastatic cancer receiving chemotherapy. Factors associated with a high rate of complications include chemotherapy induced myeloid toxicity, protein malnutrition, and immunosuppression. Furthermore, traditional signs of an acute surgical abdomen may be masked in these patients, leading to a delay in diagnosis. Finally, because the

prognosis of these patients is poor, the decision to proceed with exploratory laparotomy is difficult and is often made late in the clinical course.

Most cases of gastrointestinal perforation related to malignant disease are caused by hematological malignancies, with solid tumors, such as ovarian carcinoma, being an extremely uncommon cause. Lymphoma with intestinal involvement is the malignancy most likely to lead to gastrointestinal perforation following systemic chemotherapy. In such cases, perforation is often related to transmural involvement of the intestine, resulting in full thickness necrosis following chemotherapy. Furthermore, because of the extensive involvement of the gastrointestinal tract by lymphoma and the relative chemo sensitivity of this neoplasm, perforation is not uncommon following chemotherapy. Conversely, metastases from solid organ tumors are often limited to the serosal surface and therefore do not lead to full thickness necrosis following chemotherapy.

Radiation therapy directed at the abdomen may damage the gastrointestinal tract. The extent of injury depends on the dose of radiation delivered, the radiation fields utilized, the energy of the ionizing radiation, and the use of adjunctive methods to shield the intestines. Immediate effects include damage and subsequent sloughing of the mucosal layer of the intestinal tract. Most of the immediate effects lead to substantial nausea and

vomiting, which are usually temporary. Most patients can be managed as outpatients, and oral agents can be used to palliate symptoms. However, a small but significant fraction of patients require hospitalization for intravenous administration of fluid and antiemetic. Finally, in its severest form, radiation induced injury leads to full thickness injury of the intestinal tract with subsequent perforation. Such an injury usually occurs later in the course of the radiation therapy or follows the completion of treatment. Once the diagnosis is made, the management of this condition is similar to that of any intestinal perforation.

Upon abdominal exploration, the area of perforation should be resected, if possible. A conservative approach to reestablishing gastrointestinal continuity should be used, especially for patients with poor nutritional status, altered host immune response or impending shock. Ostomies should be used liberally and may be reversed at a subsequent procedure, if appropriate. Furthermore, strong consideration should be given to the placement of gastrostomy and feeding jejunostomy tubes. Such devices obviate the need for prolonged nasogastric intubation and allow for early enteral feeding.

Biliary Obstruction

Biliary obstruction by metastases to the hilum of the liver or portal lymph nodes is an uncommon but troublesome problem in patients with cancer. Such obstructions may be caused by a variety of tumor types, including lymphoma, melanoma, and carcinoma of the breast, colon, stomach, lung or ovary, Obstruction of the biliary tree due to primary carcinomas of the common bile duct and pancreas is discussed elsewhere. Evaluation is best performed with CT scan, which provides information on the site of obstruction, reveals the degree of biliary obstruction, allows evaluation of the remainder of the abdomen, and often gives clues as to the cause of obstruction. When necessary, endoscopic ultrasound or Ct-guided fine needle aspiration can be performed in this region to obtain a tissue diagnosis.

The prognosis for patients with biliary obstruction from metastatic disease is poor. In one published series of 12 patients with biliary obstruction from metastases, 11 patients had disease either in other intra-abdominal sites or in extra-abdominal locations. The 60 day mortality rate in this group has been reported to be as high as 67%. Thus, treatment should aim to palliate jaundice and to prevent cholangitis. Endoscopic Retrograde Cholangio Pancreatography and stent placement best accomplished drainage of the

biliary tree. If this approach is unsuccessful percutaneous trans-hepatic drainage is indicated. External Beam radiation, with or without chemotherapy may also provide substantial palliation, especially in cases of obstruction due to primary biliary or pancreatic carcinoma. Surgery should be reserved for patients who are at low-risk that is patients for who the risk of metastatic disease is low and the chance for long terms survival is high.

Neutropenic Enterocolitis

The terms neutropenic enterocolitis, typhilitis, necrotizing enteropathy and ileocecal syndrome have all been used to describe a clinical entity characterize by febrile neutropenia abdominal distension, right-sided abdominal pain, tenderness, and diarrhea. The syndrome most often occurs in patients undergoing chemotherapy for a hemotologic malignancy, but may also occur in patients with solid tumors. Signs and symptoms characteristically develop after neutropenia lasting 7 days or more. The initial presentation consists of right side abdominal pain, tenderness, & fever and may mimic appendicitis. The diagnosis is made clinically, often by exclusion of other pathologic causes Serial examinations by the same examiner are critical for proper diagnosis and treatment. Abdominal films characteristically reveal a nonspecific ileus pattern with some dilation of the cecum. Pneumatosis is an inconsistent finding. The CT finding for

neutropenic enterocolitis, are also nonspecific, consisting mainly of bowel wall thickening and edema. However, CT scans are invaluable to rule out other pathologic conditions. Complete workup should include stool cultures for bacteria and clostridium difficile toxin.

The severity of neutropenic enterocolitis varies, and therapy must be individualized. Medical management which includes bowel rest, nasogastric suction, broad spectrum antibiotics, and IV hyperalimentation is successful in most cases. Although granulocyte transfusion has never been proven to be effective, granulocyte colony stimulating factors, which shorten the neutropenic period, are likely to improve outcome. Surgical intervention is indicated in cases of perforation, uncontrolled hemorrhage, sepsis, and progression of symptoms on medical therapy. Right Hemicolectomy with all without ileostomy is the surgery of choice in most cases.

Hemorrhage

Malignant tumors are rarely the source of significant intra abdominal hemorrhage, even in patients with known cancer: Peptic ulcer disease and gastritis, the most common causes of bleeding in unselected series, are the leading etiologies in 54% to 75% of patients with cancer: Gastrointestinal lymphomas and metastatic tumors are the lesions that most commonly initiate massive hemorrhage. Because spontaneous hemorrhage caused by

tumors rarely occurs, individuals with cancer should receive the same systematic approach to diagnosis and treatment as do those without malignant disease. While resuscitation with crystalloid and blood product is under way, the diagnostic workup to define the site and etiology of bleeding should begin. Bleeding proximal to the ligament of Treitz is marked clinically by hematemesis of blood per nasogastric aspirate. Upon the finding of such sings upper endoscopy should be performed promptly.

Bright red blood per rectum should initiate investigation of a colonic or rectal source. In such cases, either proctosocopy or sigmoidoscopy serves as an expedient initial diagnostic maneuver Angiography and nuclear red cell scans are often useful to localize bleeding sites in the colon and small bowel. Mild blood lose due to a colonic neoplasm can usually be treated endoscopically with electrocautery or placement of topical haemostatic agents if the lesion is with the rectum. Some patients require urgent surgical resection of a colonic neoplasm for continued bleeding, but this procedure can usually be delayed to allow for localization of the site of bleeding and until the bowel has been mechanically cleansed to allow for a primary anastomosis. If the bleeding cannot be localized and the hemorrhage is massive, immediate exploration with intra-operative endoscopy should be considered. Exploration, endoscopy or both may allow localization of the

bleeding site so that surgical resection may be directed; however total abdominal colectomy may be needed if the hemorrhage cannot be precisely localized. Small bowel tumors rarely present with massive gastro intestinal hemorrhage, although gastric carcinoma may occasionally present with acute bleeding. The evaluation and treatment approaches are nearly identical to those for similar conditions arising from a colonic source, with endoscopy as the first line of treatment and surgical resection reserved for a more elective setting.

Extra luminal, intra-abdominal hemorrhage should be suspected when there is significant blood loss without hematemesis, melena, or hematochezia. The retroperitoneum is the most frequent site of occult intra-abdominal hemorrhage. If this condition is suspected, CT scan is the best method of evaluation. Therapy for intra abdominal hemorrhage is initially directed at resuscitation and correction of any existing coagulopathy. A history of aspirin or nonsteroidal anti-inflammatory use within 1 week must raise suspicion of platelet dysfunction and a bleeding time should be obtained. After the site and source of bleeding have been identified specific therapy is instituted. Under controlled conditions, invasive therapies, such as angiographic embolization, may be attempted. The timing of surgical intervention is based on the rate and volume of blood loss, the underlying pathology, and the patient’s overall prognosis.

COMPLICATED GASTRIC CANCER

Although the incidence of gastric cancer is declining, it is still one of the commonest causes of cancer deaths worldwide. Surgery is the only curative option for localized disease. Despite the many published studies on elective surgical treatment, there is insufficient information on complicated gastric cancer. The spontaneous perforation of gastric cancer is a rare fatal complication, occurring in 1% of patients with gastric cancer, and it has a wide hospital mortality range (0–82%).[11] In addition, it has been reported that about 10–16% of all gastric perforations are caused by gastric carcinoma. In most instances, gastric carcinoma is not suspected as the cause of perforation prior to emergency laparotomy, and the diagnoses of malignancy are often made only on postoperative pathologic examination. It is often difficult to recognize the kind of lesion that caused gastric perforation at the time of emergency surgery, particularly when pathologic evaluation of frozen sections is not available. The treatment should aim to manage both the emergency condition of peritonitis and the oncologic technical aspects of surgery.

COMPLICATIONS OF CANCERS ARISING IN THE SMALL INTESTINE

No specific signs or symptoms indicate the presence of malignancy in the small intestine. The typical presentation for these cancers is often vague and non-focal; however, a few generalizations can be made after review of the large case series in the literature:

- It appears that malignant lesions are symptomatic earlier in their natural history and for a shorter period of time before diagnosis, as opposed to benign lesions, which are more frequently discovered incidentally.[12]
- Approximately half of all small bowel tumors present as an acute event; 77% of the time this is either an obstruction or a perforation.[13]
- The most frequently presenting signs and symptoms are nonspecific and include abdominal pain, nausea, and vomiting (obstruction), weight loss, and GI bleeding.[14,15,16,17]

The small numbers of each histological subtype reported in these case series make it difficult to draw generalizations about specific signs and symptoms for each of the histological subtype. Nevertheless, it does appear that adenocarcinomas are more frequently associated with pain and obstruction when compared to sarcomas or carcinoids. GIST is more

frequently associated with acute GI bleeding than the other common subtypes, and lymphomas appear to be associated with a higher rate of presentation with intestinal perforation/obstruction (Table 4).

Early diagnosis of small bowel tumors is hampered by this lack of early and specific clinical symptoms. Several authors have retrospectively reviewed the diagnostic work-up of small bowel tumors and found significant delays in the time from presentation to definitive diagnosis.[12,18,19]The reasons for this difficulty is multifactorial, but is undoubtedly due to the relative insensitivity for small bowel neoplasm for many of our standard diagnostic tests. Therefore, the clinician must have a high degree of suspicion for patients who present repetitively with vague or nonspecific symptoms and use advanced diagnostic imaging to assist in the diagnosis. Newer radiologic and endoscopic diagnostic tools may improve our diagnostic accuracy in these diseases.

Table 4. Presenting Signs and Symptoms of Cancer Arising in the Small Bowel in Several Large Series

	Adenocarcinoma	***Carcinoid***	***Sarcoma (GIST)***	***Lymphoma***
Abdominal pain	38-46	34	25	39-55
Obstruction	45-77	22-49	15	22
Perforation	2	0-2	0-2	15
Gastrointestinal bleed	12-26	0-2	30	4
Weight loss	21	25	0-5	52

GIST, gastrointestinal stromal tumor.
(From refs. 13,14 ,15,16, 17,20.)

COMPLICATIONS FROM PRIMARY COLON CANCER

Patients with primary lesions of the colon can present with obstruction, bleeding, and perforation. The surgical management of these patients can be complex, requiring intra-operative decisions tailored to the situation that is encountered. Blood per rectum can be one of the most frightening experiences for patient and physician alike. Bleeding from a colorectal cancer can occur anywhere from the cecum to the distal rectum. Although bleeding can be temporized with endoscopic fulguration and the patient supported with transfusion, definitive management of the lesion with either surgery or radiation therapy will ultimately be required. Other maneuvers such as angiographic embolization may provide only a temporary solution. Fortunately, life-threatening hemorrhage due to a colon cancer primary is a rare occurrence. More often these lesions lead to a chronic blood loss, resulting in anemia.

Colonic obstruction due to a primary tumor is not uncommon. Obstructing colon lesions present several important issues.[21] First the acute obstruction must be managed. Ideally, an exploration with resection of the tumor and primary anastomosis with or without a diversion is ideal. However, given the fact that the operation will be performed on unprepared bowel and the patient's physical condition may be less than optimal,

resection without an anastomosis and an end colostomy should be considered. In some instances the obstructing lesion may present significant technical hurdles for resection in the setting of an acutely dehydrated and ill patient. In these circumstances, a decompression maneuver that can be performed rapidly and with minimal morbidity, such as a transverse loop colostomy or a colostomy and mucous fistula, can be performed to temporize the situation and allow the patient to be prepared and resuscitated adequately for a definitive resection at a second exploration.

In situations in which a lesion is unresectable or if there is significant spread of tumor throughout the peritoneum or into contiguous organs that cannot be resected, an internal bypass can be considered to relieve the obstructing process. However, a bypass operation should be reserved only for the most extreme circumstances as complications following these procedures due to repeat obstructions and leakage with abdominal sepsis are not insignificant.

Carcinoma of the colon that is complicated by obstruction or perforation has been recognized as having a poorer prognosis. Data obtained from 1,021 patients with Dukes stage B and C colorectal cancer, who were entered into randomized clinical trials of the NSABP, showed that the

presence of bowel obstruction strongly influenced the outcome. The effect of bowel obstruction was more pronounced when the obstruction was located in the right colon. The larger-sized tumor needed to block the ascending colon completely might allow a longer time for these tumors to grow and spread when compared with tumors located in the descending colon.

A review of the Massachusetts General Hospital records compared patients presenting with obstruction or perforation with a control group undergoing curative resection. The actuarial 5-year survival rate seen in patients presenting with obstruction was 31%, in contrast to 59% in historical controls. For patients with localized perforation, the 5-year actuarial survival rate was 44%. The Gastrointestinal Tumor Study Group (GITSG) multivariate analysis concluded that obstruction was an important indicator of prognosis, independent of Dukes stage. Bowel perforation was a poor prognostic factor only for disease-free survival.

Peritonitis secondary to large bowel perforation due to colonic cancer or benign colorectal disease still remains a major clinical life-threatening condition associated with high morbidity and mortality. The reported incidence of malignant perforation from colorectal cancer ranges from 1.2% to 9%[22]. Bacterial contamination of peritoneal cavity may lead to septic shock. Surgical control of septic focus may prevent or treat this condition. It

has been shown that non-resectional procedures lead to high mortality reaching 66%–72% in cases of diffuse peritonitis[22]. Primary resection of the diseased part of the colon and anastomosis is commonly performed and this procedure is safe provided that peritonitis is not severe. There is still controversy about proper surgical treatment of diffuse peritonitis due to large bowel perforation, especially left-sided. Hartmann's procedure became popular during the last decades as an alternative to colostomy alone (a three-stage approach) because the latter neither eliminates the source of inflammation nor stops continuous peritoneal soiling. There are reports demonstrating patients with diffuse peritonitis treated by resection of diseased colonic segment with or without intraoperative colonic lavage and primary anastomosis. Mortality rates ranged from 6.5% to 30%. In conclusion, a radical aggressive approach is recommended for most patients with large bowel perforation. Mortality and morbidity are closely related to the extent of intraperitoneal infection and the incidence of postoperative complications is higher in patients with perforation due to non-malignant causes[22].

Rectal perforation presents high morbidity and mortality and its treatment is still not standardized, it is still rather based on the surgeon's personal experience. In a retrospective trial, with a literature review, 1175

operations conducted for colorectal emergency, over a ten-year period, fourteen consecutive patients (1.2%) were seen and treated for rectal

perforation. In 43% of cases the treatment consisted in Hartmann's procedure, in the 28.5% ones in rectal wound repair with diverting colostomy and in 28.5% left in diverting colostomy alone. RESULTS: There were no postoperative complications in 86% of patients, and no deaths from sepsis. In 28.5% of cases intestinal continuity was restored[23].

OPERATIVE MANAGEMENT

Cancer is often a disease of the elderly, and there is sometimes a tendency to avoid even curative major surgery for cancer in patients of advanced age. In the United States and in most Western countries, life expectancies for the elderly have increased substantially. The average life expectancies for 80-year-old men and women in the United States are 8 and 10.5 years, respectively. The expected survival of 90-year-old men and women is 4.7 and 6.0 years, respectively. Thus, even in the very old cancer patient, aggressive curative surgery can be warranted.[24]

Surgeons are often called upon to perform operations that provide staging information for various types of cancer. Such procedures are necessary when the clinical extent of the disease has a direct bearing on the choice of treatment modalities. Examples include staging laparotomy for Hodgkin's lymphoma and ovarian cancer and mediastinoscopy for lung and esophageal cancer. Staging procedures can often help to avert highly morbid procedures in cases where there is little chance for cure.

Surgical resections with curative intent can be divided into three categories: 1) resection of a primary lesion, 2) resection of isolated metastases, and, 3) debulking of tumors to increase the chance for a cure by other treatment modalities. In each of these cases, the clinician must strive to

reach a balance between the chance for cure and the morbidity of the procedure. Each situation must be evaluated individually, and the patient's wishes must be paramount.

In the resection of a primary lesion, the tumor type guides the extent of the resection. Various tumors require different disease-free margins in order to achieve optimal chances for a cure. It is important that the surgeon have knowledge of other modalities that may be integrated into the management plan to allow for a less ablative surgical procedure. Radiation and chemotherapy are commonly used in combination with surgery and are referred to as adjuvant therapies if used after complete resection with no demonstrable local or systemic disease. If these modalities are used in the preoperative setting, they are called neoadjuvant therapies.

As a general rule, operation for metastatic disease is warranted if there is a reasonable chance for cure with minimal procedure-related morbidity. This is especially true for cancers known to respond poorly to radiation or chemotherapy. Examples include resection of lung metastases in sarcomas, liver metastases in colon cancer, and solitary brain metastases in various cancers. The resection of metastatic disease may not achieve a definitive cure but may give substantial palliation or increase life expectancy.

Palliative surgery is performed for incurable malignancies in order to improve the patient's quality of life. Situations in which palliative procedures should be considered include impending intestinal obstruction, obstruction of the respiratory tract, severe pain, intractable ascites, pathologic fractures, and recurrent pleural effusions.

Finally, the surgeon may be called upon to manage oncologic emergencies. Most of the procedures performed in such situations are palliative, but they can be lifesaving in the short term. Severe hemorrhage and intestinal obstruction or perforation, are some of the situations in which surgeons may be called on to emergently intervene in the care of a cancer patient.

Reports of most surgical series include an account of operative mortality and operative complications. These results, combined with a consideration of the general health status of the patient, allow a reasonable estimate of the operative mortality for any given surgical intervention in the treatment of patients with cancer.

As with any treatment, the potential benefits of surgical intervention in cancer patients must be weighed against the risks of surgery. The incidence

of operative mortality is of major importance in formulating therapeutic decisions and varies greatly in different patient situations (Table 5)

The incidence of operative mortality is a complex function of the basic disease process that involves surgical factors, anesthetic technique, operative complications, and, most importantly, the general health status of patients and their ability to withstand operative trauma.

In an attempt to classify the physical status of patients and their surgical risks, the American Society of Anesthesiologists (ASA) has formulated a general classification of physical status that appears to correlate well with operative mortality.[25] Patients are classified into five groups depending on their general health status.

Operative mortality usually is defined as mortality that occurs within 30 days of a major operative procedure. In oncologic patients, the basic disease process is a major determinant of operative mortality (Table 6). Patients undergoing palliative surgery for widely metastatic disease have a high operative mortality rate even if the surgical procedure can alleviate the symptomatic problem. Examples of these situations include surgery for intestinal obstruction in patients with widespread ovarian cancer and surgery for gastric outlet obstruction in patients with cancer of the head of the pancreas. These simple palliative procedures are associated with mortality

rates up to 20% because of the debilitated state of the patient and the rapid progression of the underlying disease.

The five most common causes of death after surgery are: bronchopneumonia, congestive heart failure, myocardial infarction, pulmonary embolism, and respiratory failure. Patients with a recent myocardial infarction have a significantly higher incidence of reinfarction and cardiac death associated with surgery. Significant improvements have occurred as new techniques of anesthetic monitoring and hemodynamic support have been developed.[26,27,28]

Table 5. Determinants of Operative Risk[29]

General health status
Severity of underlying illness
Degree to which surgery disrupts normal physiologic functions
Technical complexity of the procedure (related to incidence of complications)
Type of anesthesia required
Experience of personnel

Table 6. Risk Factors Associated with 7-Day Operative Mortality[29]

Variable	*Description*	*Relative Odds of Dying*
	PATIENT FACTORS	
Age	>80 y vs. <60 y	3.29
Gender	Female vs. male	0.77
Physical status	ASA III - V vs. ASA I-II	10.65
	SURGICAL FACTORS	
Operation type	Major vs. minor	3.82
Length	>2 h vs. <2 h	1.08
Urgency	Emergency vs. elective	4.44
	ANESTHESIA FACTORS	
Techniques	Inhalation + narcotic vs. inhalation alone	0.76
	Narcotic alone vs. inhalation alone	1.41
	Narcotic + inhalation vs. inhalation alone	0.79
	Spinal vs. inhalation alone	0.53
	Number of anesthetic drugs: 1-2 vs. >3	2.94
Experience of anesthetist	>600 procedures/y for 8+ y vs. <600 procedures/y for <8 y	1.06

ASA, American Society of Anesthesiologists.

STUDY DETAILS

Type of study : Prospective study

Number of cases : 21

Male: Female = 15 male: 6 female

Period of study : May 2007 to November 2009

Institution : Department of General Surgery, Government Royapettah Hospital, attached to Kilpauk Medical College

Type of analysis : Clinical data analysis

Inclusion criteria:

- Adult patients (above the age of 12 years)
- Abdominal emergency surgery (surgery for laparotomies, intestinal obstruction, peritonitis, hemorrhage)
- Histopathological report suggestive of malignancy.

Exclusion criteria:

- Pediatric cases (below the age of 12 years)
- Elective surgeries and patients who were previously worked up suspecting such malignancies.

Limitations:

- Being a study of malignancies in emergency surgery, this study gives a general idea of the incidence of only those cases who present with complications, either resulting due to these malignancies or due to some other cause. Most patients with malignancies do not present with such problems, they are diagnosed rather with their classical features of presentation pertaining to the organ involved.

- This study involves only the cases that primarily present with surgical complications, whereas there is another set of patients who are diagnosed with malignancies and are on treatment and develop complications due to the treatment or in the later course of the disease due to malnutrition or paraneoplastic syndromes or metastasis which are not included.

- Moreover a greater subset of patients with medically treatable complications is not dealt with as these are mainly treated by the physician and the medical oncologist in our institution.

- ue to a limited number of cases, statistical analysis could not be done.

All patient details were meticulously recorded and details verified with the case sheets. All variables pertaining to patient details, presentation, pre-op investigations were recorded in preformed worksheet to ensure uniformity in recording and eliminating any bias. Patient details and procedure done, with the malignancies detected are mentioned in the master chart.

MANAGEMENT PROTOCOL

1. Clinical evaluation
2. Investigations-
    - Biochemical – Renal function tests, Liver function tests, Blood sugar
    - Complete blood count – Hb, TC, DC, BT, CT, ESR
    - Radiology –
        - X ray chest PA (erect)
        - X ray abdomen PA (supine)
        - Ultrasound abdomen
        - CT abdomen – plain and contrast
3. Surgical management
4. Post operative histological examination of the specimen
5. Complications during the immediate post – op period(upto 30 days)
6. Follow up in the late post op period and re-admissions if any.

MODES OF PRESENTATION

In this study, it was seen that patients with documented malignancies manifested with one of the following:

- Peritonitis – localized / generalized
- Intestinal obstruction

SURGICAL OPTIONS

Surgical options exercised varied according to each case. Most of the patients were elderly with multiple comorbid factors and poor general condition at presentation. Hence, in majority of the cases minimal appropriate procedures were performed.

Among 6 cases where a gastric malignancy was complicated with perforation and peritonitis, in one patient anterior gastro-jejunostomy with perforation closure using omental patch was done but he developed anastomotic leak and later burst abdomen and finally expired on post operative day 24. Whereas, in another patient the perforation was closed with a live omental patch and a feeding jejunostomy was done. In two cases where the perforation was larger than 1 cm, the omentum was tied with Vicryl sutures to a second Ryle's tube which was pulled up and fixed to the nose, so that the omentum could plug the perforation. One patient expired in

early postoperative period whereas in the second patient the Ryles tube was removed on the 21st post operative day without and complication. In the rest two cases the perforation was closed with Graham's patch.

Among 12 cases where a colonic malignancy was the cause of obstruction, in 4 cases the mass was removed as part of hemicolectomy and the rest bowel was reanastomosed or Hartman's procedure was done. In 2 cases with sigmoid growth limited resection of sigmoid colon with Hartman's procedure was done. In another case with cecal growth limited resection with ileo-transverse anatomosis was done. Out of three cases where the mass was not resectable, the one with hepatic flexure growth, ileo-transverse colon anterior bypass was done whereas, in the other two cases with left colonic growth, proximal diversion colostomy was done. In another case with carcinoma rectum, a diversion ileostomy with colonic decompression was done. Finally, in a documented case of rectal malignancy in an elderly male, due to his poor general condition and shock at presentation, only per rectal decompression and biopsy could be attempted as the patient could not recover from the shock.

In the only case where a splenic flexure growth presented with perforation of cecum, limited resection of colon with proximal ileostomy and mucous fistula was done.

In another lady who presented to us with obstipation and abdominal distention, on laparotomy a huge ovarian mass was found as the cause of the obstruction. Total abdominal hysterectomy with bilateral salpingo oophorectomy with omentectomy was done as her general condition was favourable.

An elderly male who presented with acute intestinal obstruction, was found to have jejunal stricture. Segmental resesction and anastomosis was done but the histological report came as adenocarcinoma.

POST OP PERIOD

Post op morbidity and mortality in the immediate 30 days were analyzed.

LONG TERM FOLLOW UP

All the patients were followed up for hospitalizations for chemo or radiotherapy and/or problems related to the previous malignancy.

ANALYSIS OF THE STUDY

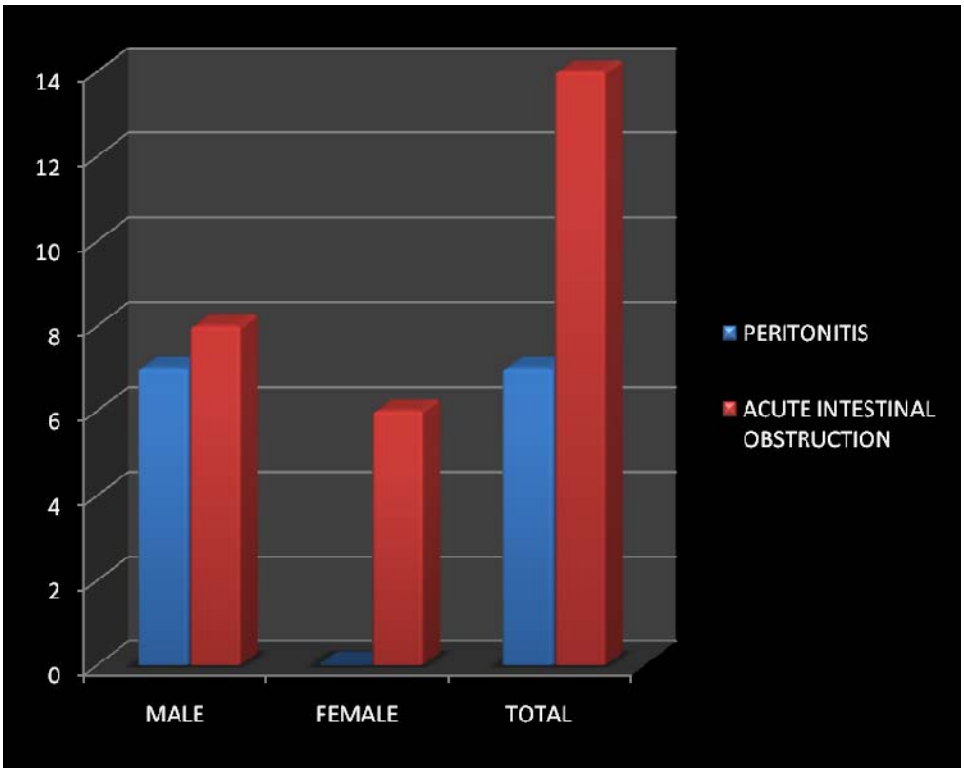
- The total number of abdominal emergencies in the study period was 320 of which 17 were due to trauma.
- A total number of 21 cases were diagnosed to have malignancy and were taken up for analysis within the stipulated study period.
- The number of male patients was 15 and the number of female patients was 6; the male – female ratio being 2.5: 1
- The age of the patients ranged from 32 years to 70 years.
- The mean age of manifestation was 51.86 years
- The median age of the selected study group was 53 years.

THE VARIOUS MODES OF PRESENTATION OF MALIGNANCIES

ARE AS FOLLOWS:

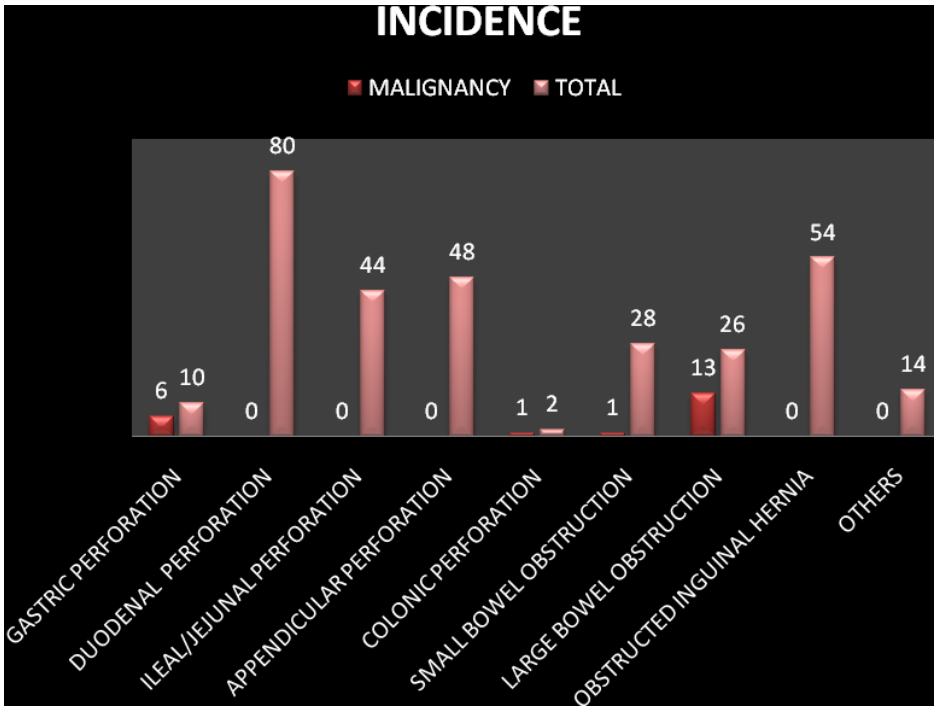
	PERITONITIS	**ACUTE INTESTINAL OBSTRUCTION**
MALE	**7**	**8**
FEMALE	**0**	**6**
TOTAL	**7**	***14***

MODES OF PRESENTATION



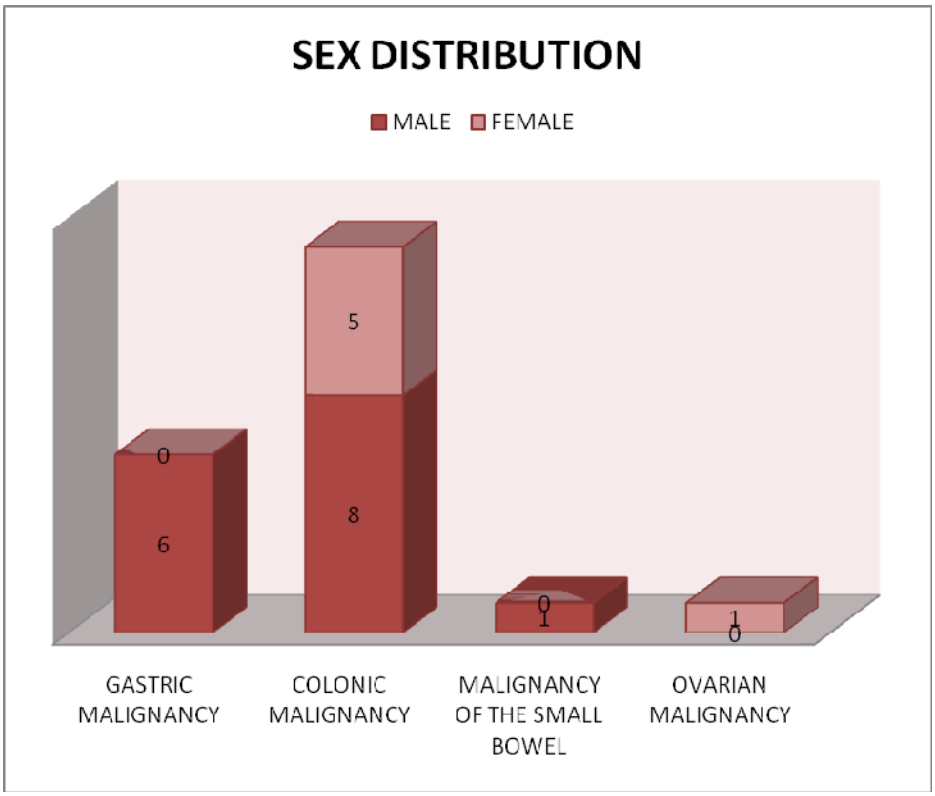
THE VARIOUS CAUSES (EXCLUDING TRAUMA) FOR PRESENTATION AS ABDOMINAL EMERGENCIES AND THE NUMBER OF MALIGNANCIES DIAGNOSED AMONG THEM WERE AS FOLLOWS:

	GASTRIC PERFORATION	DUODENAL PERFORATION	ILEAL/JEJUNAL PERFORATION	APPENDICULAR PERFORATION	COLONIC PERFORATION	SMALL BOWEL OBSTRUCTION	LARGE BOWEL OBSTRUCTION	OBSTRUCTED INGUINAL HERNIA	OTHERS
MALIGNANCY	6	0	0	0	1	1	13	0	0
TOTAL	10	80	44	48	2	28	26	54	14
INCIDENCE	.6	0	0	0	.50	.035	.5	0	0



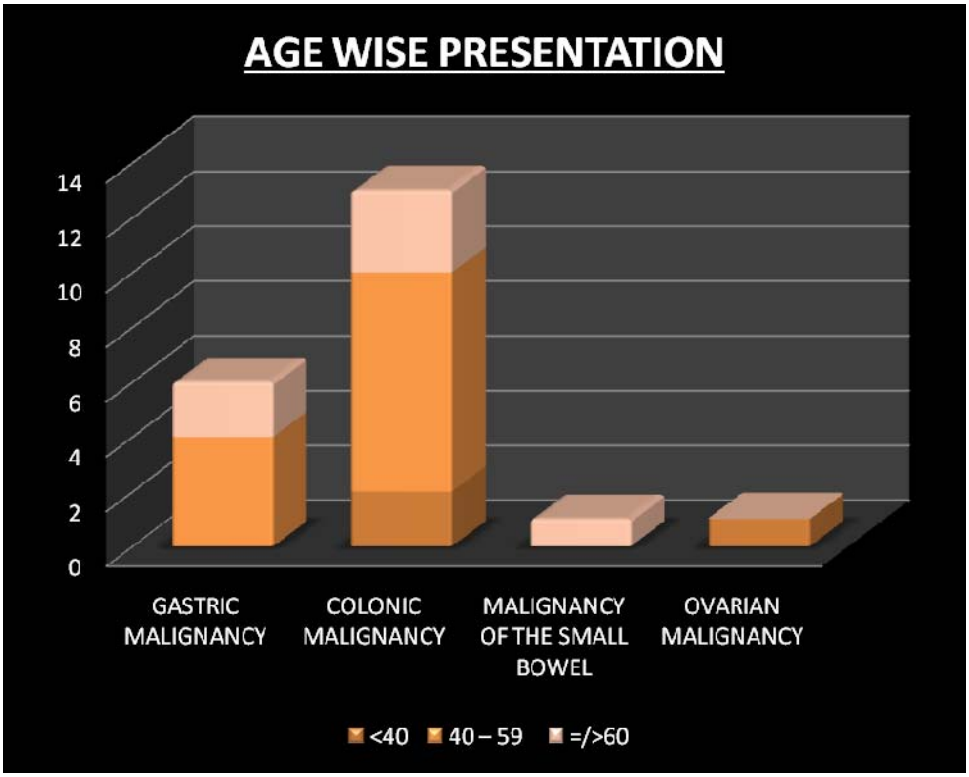
THE SEX DISTRIBUTION OF VARIOUS MALIGNANCIES ARE DESCRIBED IN THE TABLE BELOW:

	GASTRIC MALIGNANCY	COLONIC MALIGNANCY	MALIGNANCY OF THE SMALL BOWEL	OVARIAN MALIGNANCY
MALE	6	8	1	0
FEMALE	0	5	0	1
TOTAL	6	13	1	1



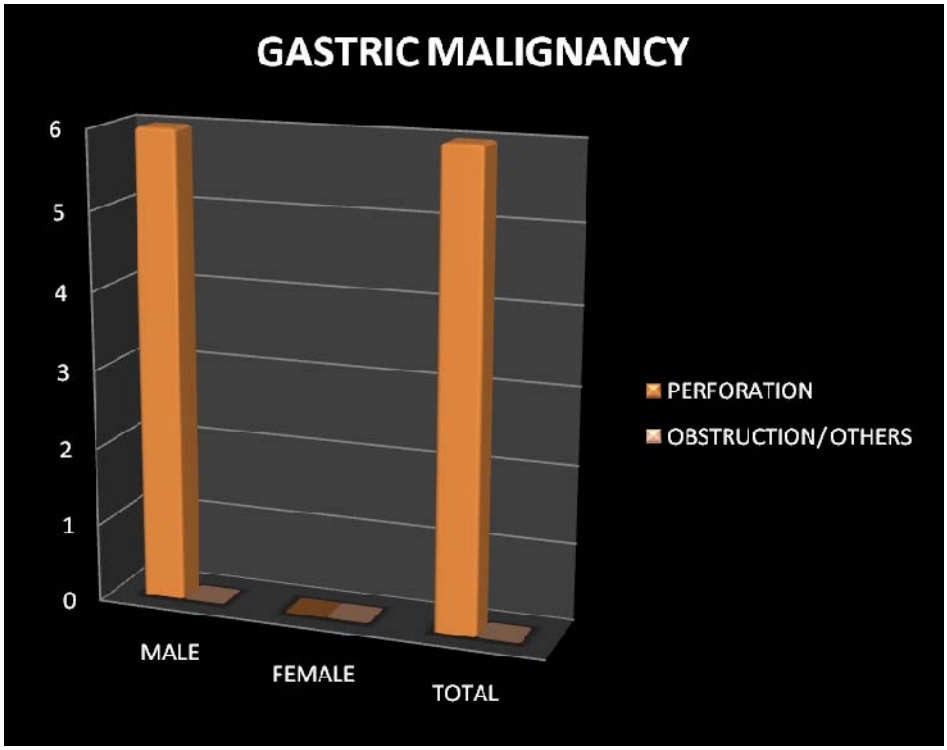
THE AGE WISE PRESENTATION OF MALIGNANCIES IS AS UNDER:

	GASTRIC MALIGNANCY	COLONIC MALIGNANCY	MALIGNANCY OF THE SMALL BOWEL	OVARIAN MALIGNANCY
<40	0	2	0	1
40 – 59	4	8	0	0
=/>60	2	3	1	0
TOTAL	6	13	1	1



THE INCIDENCE OF COMPLICATED GASTRIC MALIGNANCY IS AS UNDER:

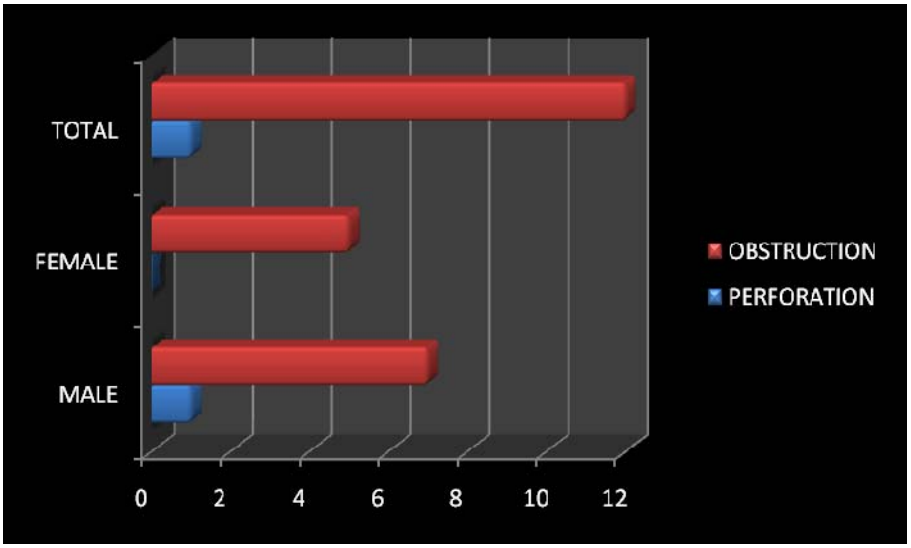
	PERFORATION	OBSTRUCTION/ OTHERS
MALE	6	0
FEMALE	0	0
TOTAL	6	0

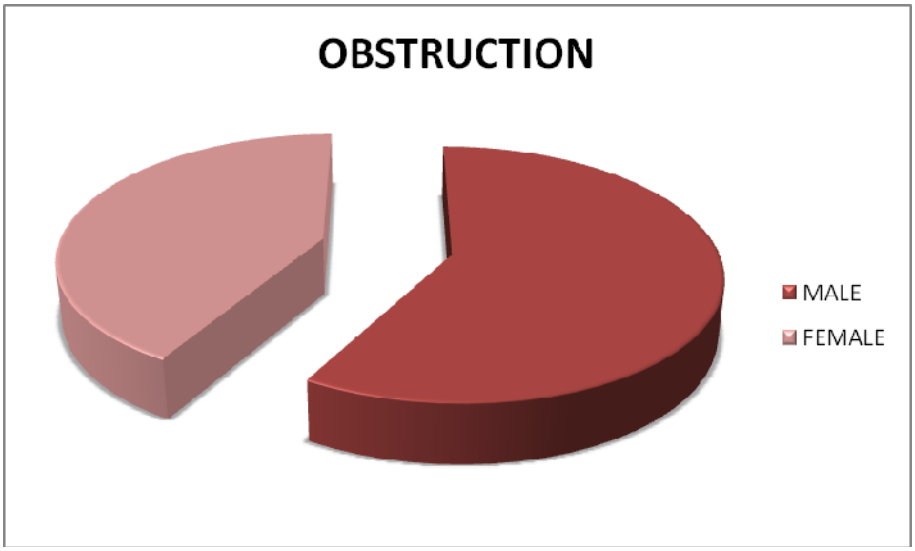


THE INCIDENCE OF COMPLICATED COLONIC MALIGNANCY

IS AS UNDER:

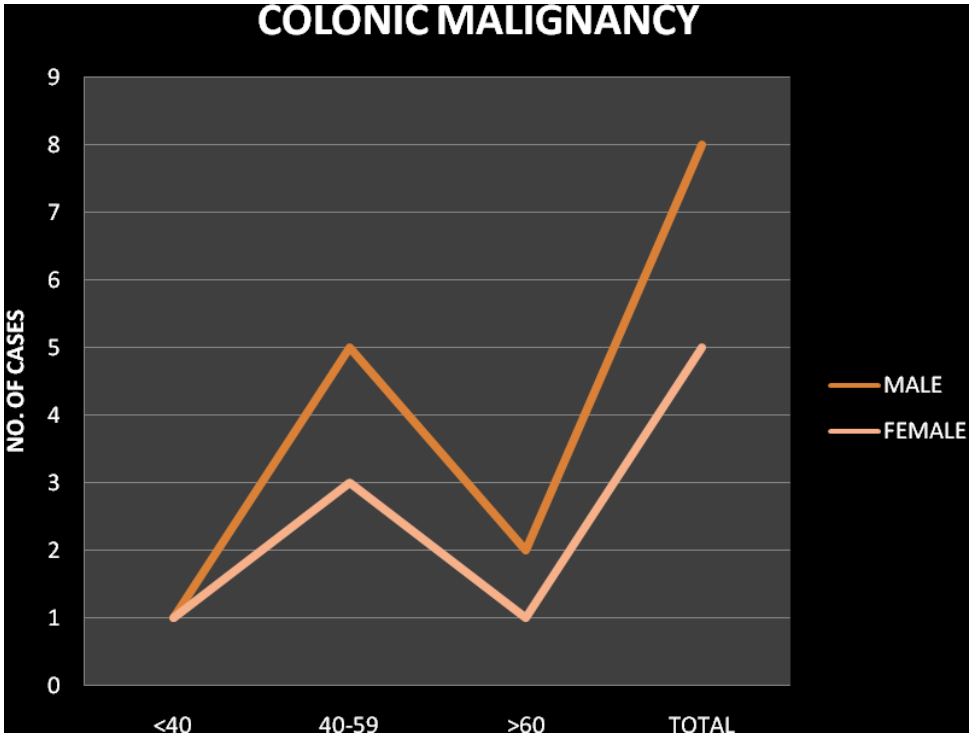
	PERFORATION	OBSTRUCTION
MALE	1	7
FEMALE	0	5
TOTAL	1	12





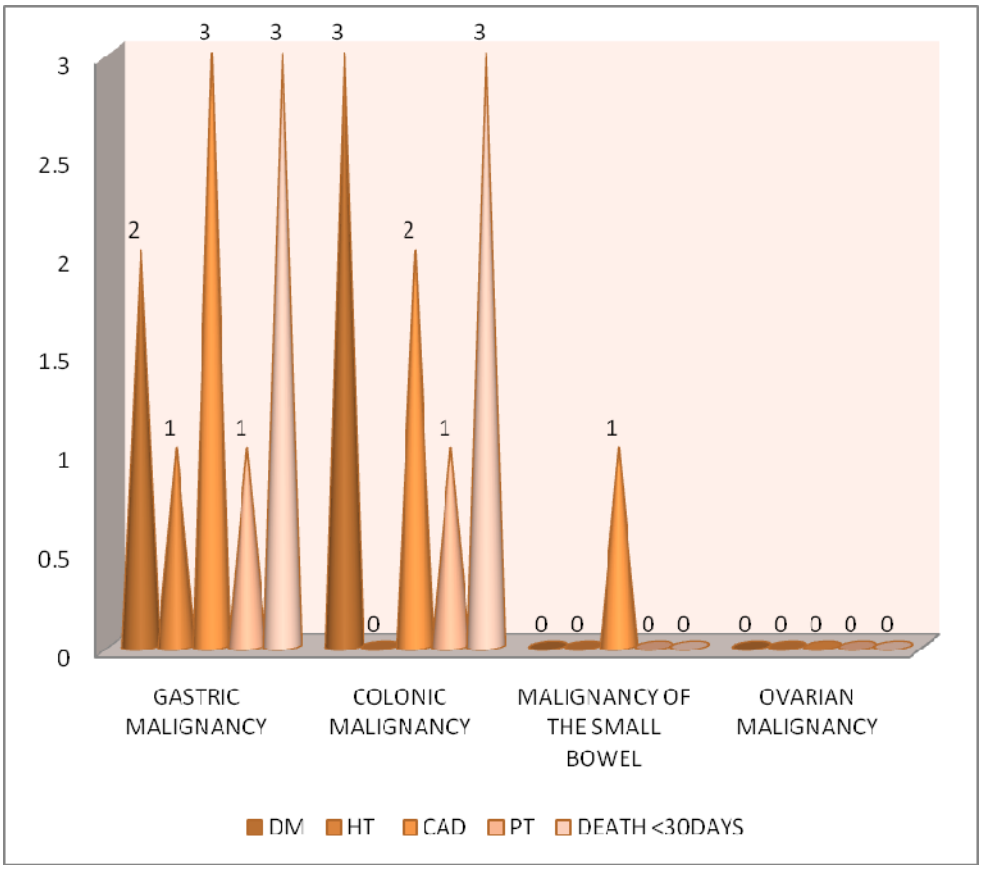
A DESCRIPTION OF AGE AND SEX DISTRIBUTION OF COLONIC MALIGNANCY IS DESCRIBED IN THE TABLE:

	MALE	FEMALE
<40	1	1
40-59	5	3
>60	2	1
TOTAL	8	5



MORTALITY IN THESE CASES AND THE PRESENCE OF CO MORBID FACTORS IN THE CASES UNDER STUDY:

CO-MORBID FATORS	GASTRIC MALIGNANCY	COLONIC MALIGNANCY	MALIGNANCY OF THE SMALL BOWEL	OVARIAN MALIGNANCY
DM	**2**	**3**	**0**	**0**
HT	**1**	**0**	**0**	**0**
CAD	**3**	**2**	**1**	**0**
PT	**1**	**1**	**0**	**0**
DEATH <30DAYS	**3**	**3**	**0**	**0**



- Out of 6 patients, 5 expired in the post operative period (30 days) after a major surgery, and the other one could not be resuscitated from the shock at presentation he could not even tolerate per rectal decompression alone.
- One more patient with gastric malignancy who was on regular follow up expired one year later due to metastasis
- Only one case of small bowel obstruction in a 69 yrs old male was found to harbor malignancy.

PERI-OPERATIVE MORTALITY CHART

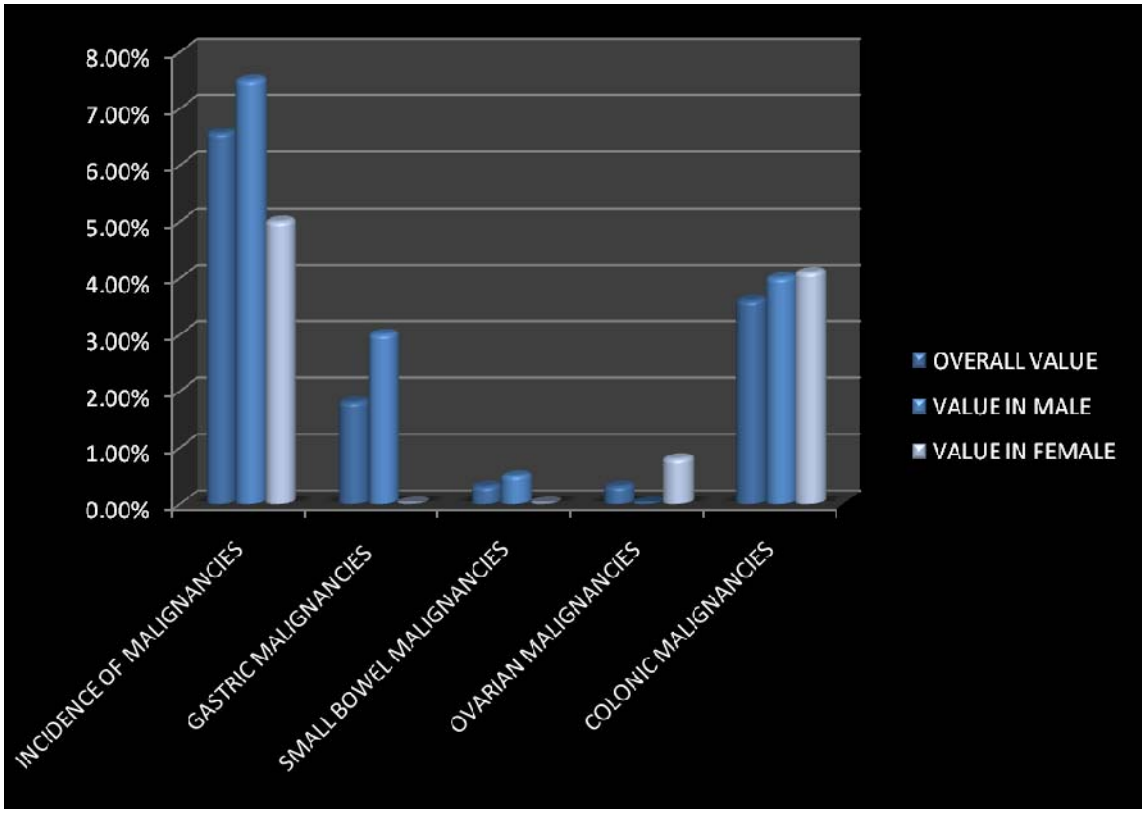
(<30 DAYS POST OP):

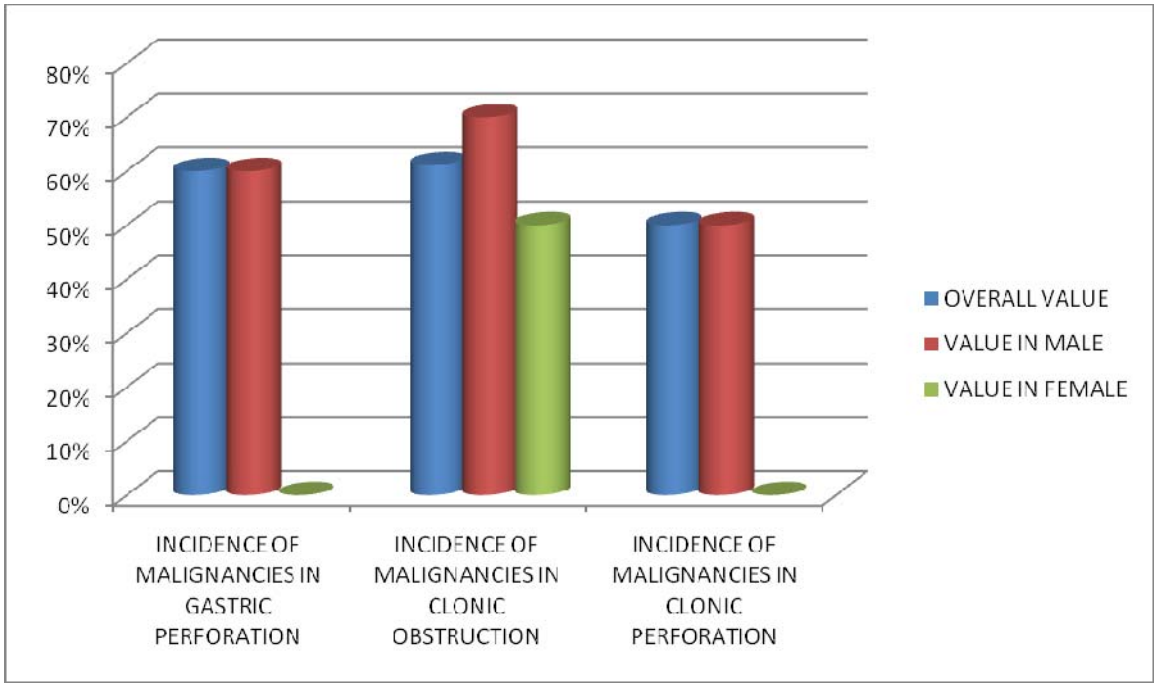
S. NO	NAME	AGE /SEX	DIAGNOSIS	INTERVENTION	CO MORBID FACTORS	DURATION OF HOSPITAL STAY	CAUSE OF DEATH
1	RAMANATHAN	55/ M	MALIGNANT GASTRIC PERFORATION	ANTERIOR G-J	DM,CAD	34	LEAK, BURST-ABDOMENSEPTICEMIA, MODS
2	PERUMAL	65/ M	SPLENIC FLEXURE GROWTH WITH CECAL PERFORATION	PROXIMAL DIVERSION COLOSTOMY	CAD	1	SEPTICEMIC SHOCK
3	KANNAYAN	55/ M	MALIGNANT GASTRIC PERFORATION	OMENTAL PATCH CLOSURE	OLD P.T.	6	ARDS
4	JANAKI	53/F	CARCINOMA RECTUM WITH OBSTRUCTION	DIVERSION ILEOSTOMY	DM,CRF,B/L HUN,CAD	58	CARDIAC ARREST
5	JAYARAMAN	63/ M	MALIGNANT GASTRIC PERFORATION	OMENTAL PATCH CLOSURE	DM, CAD	11	ACUTE M.I.
6	JEYARAJ	63/ M	CARCINOMA RECTUM WITH OBSTRUCTION		DM,CAD	1	HYPOVOLEMIC SHOCK

BASED ON THE ABOVE DATA, THE FOLLOWING WERE CALCULATED:

PARAMETER	OVERALL VALUE	VALUE IN MALE	VALUE IN FEMALE
INCIDENCE OF MALIGNANCIES	6.56%	7.5%	5%
INCIDENCE OF GASTRIC MALIGNANCIES	1.8%	3%	0%
INCIDENCE SMALL BOWEL MALIGNANCIES	0.31%	0.5%	0%
INCIDENCE OF OVARIAN MALIGNANCIES	0.31%	0%	0.8%
INCIDENCE OF COLONIC MALIGNANCIES	3.6%	4%	4.1%
INCIDENCE OF MALIGNANCIES IN GASTRIC PERFORATION	60%	60%	0%
INCIDENCE OF MALIGNANCIES IN CLONIC OBSTRUCTION	61.1%	70%	50%
INCIDENCE OF MALIGNANCIES IN CLONIC PERFORATION	50%	50%	0%
PERI OPERATIVE MORTALITY IN GASTRIC MALIGNANCY PERFORATION	50%	50%	-
PERIOPERATIVE MORTALITY IN COLONIC MALIGNANCY OBSTRUCTION	23%	20%	12.5%
PERIOPERATIVE MORTALITY IN COLONIC MALIGNANCY PERFORATION	100%	100%	-

INCIDENCE


8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
INCIDENCE OF MALIGNANCIES
GASTRIC MALIGNANCIES
SMALL BOWEL MALIGNANCIES
OVARIAN MALIGNANCIES
COLONIC MALIGNANCIES
OVERALL VALUE
VALUE IN MALE
VALUE IN FEMALE


80%
70%
60%
50%
40%
30%
20%
10%
0%
INCIDENCE OF MALIGNANCIES IN GASTRIC PERFORATION
INCIDENCE OF MALIGNANCIES IN CLONIC OBSTRUCTION
INCIDENCE OF MALIGNANCIES IN CLONIC PERFORATION
OVERALL VALUE
VALUE IN MALE
VALUE IN FEMALE

DISCUSSION

SUMMARY OF FINDINGS

From the data mentioned earlier, the salient findings are made out:

- The incidence of malignancies presenting as acute abdominal emergencies in this study was found to be around 6.56% , contrary to 2% as in literature.[4]

- The number of males who presented with such malignancies outnumbered females in a significant manner in the ratio 2.5:1. This suggests a strong tendency for males. Similar studies done elsewhere have not shown any definite male predisposition.

- The major age group affected was between 40-59 years, with no difference for either sex. Whereas no cases with carcinoma stomach presented below 50 years of age, the youngest patient with colonic malignancy was 35 years old.

- It was noted the small bowel and ovarian malignancies are rare to present as emergencies.

- Among the malignancies, Gastric (28.5%) and colonic malignancies (61.9 %) were the most common.

- Perforation was the only presentation as acute emergency in carcinoma stomach. Incidence of malignancy in gastric perforation was 60% in contrast to that reported by Emer Ergul et al. that about 10–16% of all gastric perforations are caused by gastric carcinoma.[10,11]

- Perioperative mortality in gastric malignancy perforation was 50% in our study, well within range of 0-82% reported in various studies. [11]

- Obstruction was the most common presentation in colonic malignancies (92.5%) and perforation was the only other mode of presentation (7.5%) none of them presented with hemorrhage.

- Colonic malignancy was found to be in 4 cases in right colon 3 involving cecum, while it was found to be in the left colon in 9 patients. In 6 cases it involved the sigmoid colon and rectum in other 2 cases. The only case with splenic flexure growth caused cecal distention and perforation who presented to us with peritonitis.

- Mortality rate in colonic malignancies presenting as obstruction was found to be 23% in our study. Out of 12 cases of colonic malignancies presenting with obstruction, 11 were taken up for surgery. Among them, 8 had a resectable growth whereas 3 were unresectable. Among the

resectable cases 3 underwent Hartman's procedure and 5 underwent primary anastomosis. Early post operative Mortality for unresectable growth was 66%, whereas for resectable growth, mortality was nil though the post op morbidity for Hartman's procedure was more when compared to those with resection anastomosis. The mean post operative survival could not be calculated.

- According to literature in exploration related to a malignant bowel obstruction, almost 10% of patients die because of surgery, and another 30% suffer operative complications. Furthermore, patients have a mean survival of only about 6 months following laparotomy for a malignant bowel obstruction.[10]

- Out of two non-traumatic colonic perforations encountered one was due to malignancy making the incidence 50% whereas the reported incidence of malignant perforation from colorectal cancer ranges from 1.2% to 9%[22].

- In literature, mortality rate in colonic malignancies presenting acutely was found to be 25%. It has been shown that non-resectional procedures lead to high mortality reaching 66%–72% in cases of diffuse peritonitis.[22] Mortality rates ranged from 6.5% to 30% for patients with diffuse peritonitis treated by resection of diseased colonic segment with

or without intraoperative colonic lavage and primary anastomosis..The only case with colonic perforation in our study expired on the 1st P.O.D.

- Gastric malignancies like gastric perforations were seen only in males. Whereas, colonic malignancies were more common in males than females in the ratio of 2.5:1.

- Out of 7 patients who died in the perioperative period one had h/o pulmonary T.B., one had only D.M., two had C.A.D. alone whereas 3 patients had both D.M. with C.A.D. Among all the co-morbid factors, the presence of cardiac disease appears to affect survival to the maximum.

- Among the patients who recovered well, one had history of pulmonary T.B., one was diabetic and another was hypertensive. Hence the presence of multiple co-morbid factors especially cardiac disease appears to affect survival.

- Similar studies do not exist for a satisfactory comparison. Other studies do not individually document incidence rates with reference to emergencies.

CONCLUSION

Though the number of cases encountered by the general surgeon is not many, these malignancies pose an interesting problem in management.

The incidence in males is higher than females

The gastric and colonic malignancies form the major bulk of these malignancies.

Age group of 40-59 years is the most common age of presentation for colonic malignancies whereas, 50-60 years for gastric malignancies.

The gastric malignancies present with peritonitis, hence have a poor outcome and high mortality rate. The presence of co morbid illness increases it further.

Colonic malignancies present most commonly with features of obstruction. Left sided growths are more common than right and Sigmoid colon appears to be the most common site.

Majority of colonic malignancies presenting with obstruction are resectable at presentation and do well with surgery. Primary anastomosis has lesser morbidity than Hartman’s procedure.

The overall prognosis of the patients with resectable tumor as opposed to cases that are not resectable appears to have a better prognosis.

Perforation of colon was found to be rare and invariably fatal.

Presence of peritonitis appears to have a major role in recovery both in terms of morbidity as well as mortality. Presence of peritonitis is bad prognostic factor.

Rarely ovarian malignancy may also present with bowel obstruction.

Finally the presence of co-morbid factors greatly influences the outcome and cardiac disease seems to be the most important.